Project Based Learning

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Career Curriculum Development Association of Michigan

Who are we and what do we do?

We promote and support statewide and local curriculum development efforts in order to provide better learning opportunities for all youth and adults enrolled in Career and Technical Education programs in Michigan.

Partners we work with:

Michigan CEPD Council
Michigan Department of Education (MDE) Office of Career and Technical Education (OCTE)
Post-Secondary Education
MACTEC - Michigan Academic Career Tech Education Consultant

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Norms of Collaboration

- Model by Adaptive Schools
- Useful for ensuring respect during group work
- Sets expectations for the group to be successful
- One example: "paying attention to self and others"

Paying attention to self and others: Collaborative work is facilitated when each team member is explicitly conscious of self and others – not only aware of what he or she is saying, but also how it is said and how others are responding to it. We need to be curious about other people's impressions and understandings but not judgmental. As we come to understand someone else's way of processing information, we are better able to communicate with them.

Adapted from Robert J. Garmston and Bruce Wellman, The Adaptive School: A Sourcebook for Developing Collaborative Groups, 1999. pp. 37-47, Norword, MA: Christopher Gordon. Used with permission.

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Today's Session Outcomes

1. Project Based Learning Defined (PBL)
2. Eight Design Elements & the new "Gold Standard"
3. Why PBL? How it fits CTE?
4. Assessment of PBL/share sample rubrics

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What’s the difference between school and life?

In school, you’re taught a lesson and then given a test.

In life, you’re given a test that teaches you a lesson.

-Tom Bodett

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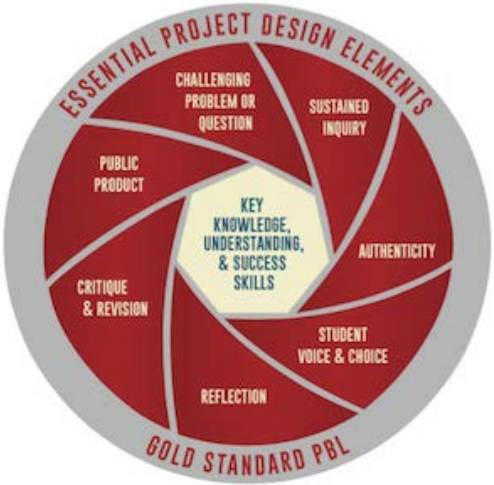
8 Design Elements of PBL



- Key knowledge, skills
- Challenging problem/driving question
- Sustained inquiry
- Authenticity
- Student voice and choice
- Reflection
- Critique and Revision
- Public product or share (this seals the deal) - this means someone outside the school (could be the advisory board)

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Video example that shows PBL links to CTE

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Why PBL?

PBL addresses Career and College Readiness skills such as:

- Critical Thinking/Problem Solving
- Teamwork (Collaboration??)
- Self management/regulation
- Perseverance
- Creativity

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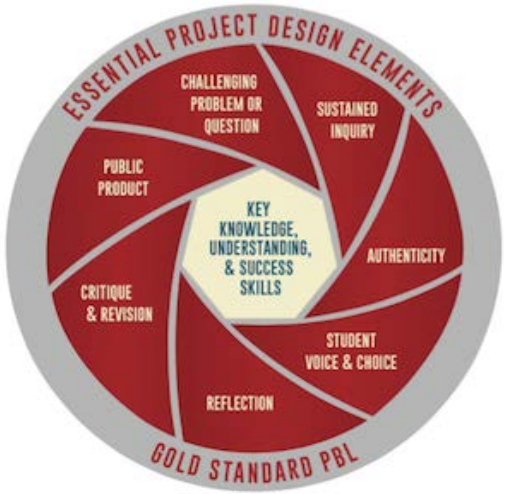

Project based learning		Just doing projects
"Owners" of their knowledge and the process of learning	Students	Follow teacher
Embeded in the project	Lecture	Lecture independent from the project
Constant	Grading	After the project. Quizes
Designer, guide and facilitator	Teacher	Holder of knowledge
Students choose what they need	Resources	Students need to read and check every resource given
Clear rubrics given at the beginig. Is a guide.	Rubrics	Rubric just for the final product, (if given)
Focus in content and skills	Content	Focus in content
Promotes differentiation as students choose what to do	Differentiation	Not impossible, but difficult to do
Open ended questions. Every student presents different answers	Presentation	Every student presents the same (closed questions)
Real audience	Audience	Many times there is no clear audience (only teacher)
Formal reflections (groups, own performance and choices for improvement	Reflection	Not always given the chance to reflect

Jury Response Handout

Topic	4	3	2	1
Problem Statement	There was no question about what problem the design solution was trying to solve. It was clear and concise.	The statement raised a little confusion as to what the project was about. It was clear with only a minor flaw.	There was very little connection between the statement and the project's design solution. It contained several confusing parts.	There was no connection between the statement and the project's design solution. It needed to be rewritten, was very confusing
Supportive Information	Well documented and complete. Easy to understand.	Needed 1-2 more pieces of supportive information to validate project.	Was weak and needed to be strengthened.	Lacked supportive information. Information given had no connection to the project.
Current and Past Solutions	Listed 4-5 solutions.	Listed 2-3 solutions.	Listed 1-2 solutions.	Did not list any solutions.
Objective	Objective is cleared stated	Objective is mostly clear with some ambiguity.	Objective is ambiguous.	Objective is not stated.
Problem Statement Justification	Well justified with 3-5 listed justifications.	Justified with 2-3 listed justifications.	Poor with only 1 justification.	None were listed.
Prototype Design	Well drawn. Excellent verbal explanation of parts and assembly.	Well drawn. Good verbal explanation of parts and assembly.	Poorly drawn, hard to understand. Poor verbal explanation.	Very poorly drawn. Bad verbal explanation.
Prototype testing	Test procedures were logical and easy to understand. All team members were knowledgeable about the reason for test, its procedure, and the significance of the test data.	Test procedures were logical and easy to understand. Half of the team was knowledgeable about the reason for test, its procedure, and the significance of the test data.	Test procedures needed more explanation to be easy to understand. Only one member of the team seemed to be knowledgeable about the reason for the test, its procedure, and the significance of the test data.	Test procedures were sketchy and difficult to understand. None of the team members seemed to understand the reason for the test, its procedure, and the significance of the test data.
Conclusion	Effectively summarized the results of the project. Noted 3-4 areas or topics for further research and development.	Effectively summarized most of the results of the project. Noted 1-2 areas or topics for further research and development.	Summary of the results of the project is incomplete. No areas or topics for further research and development were mentioned.	Summary was missing many critical details. There were no areas or topics for further research and development mentioned.

Is this a project or project based learning?

Project

PBL

Start the presentation to activate live content

If you see this message in presentation mode, install the add-in or get help at PollEv.com/app

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Poll Everywhere

STARBLAZING CODERS POSTER DESIGN

You will be creating posters for the Starblazing Coders event.

We have a logo design and a sense of visual direction. We have a list of items to include on the poster. Now you need to put them all together into a visually interesting product.

PROCESS & DELIVERABLES

The poster requirements are here.

This is the approved Starblazing Coders logo.

Here's some information related to the logo.

Posters will be 11"x17" @ 300 ppi.

You will create three different poster ideas integrating cool visuals and relevant information. At this point, the posters do not need to be pixel-perfect, but should capture the overall visual approach.

As always, I want you to follow the process of collecting research inspiration and images that could be used in the poster. I want some rough sketches of different approaches on drawn on paper. These should influence where you go with the digital work.

Organize and save all your work in a google folder called **Starblazing Coders Poster.**

GRADING

This assignment is worth a total of 16 points

- Visual Research - up to 4 pts
- Traditional Sketches - up to 4 pts
- Technical considerations - up to 4 pts
- Aesthetic considerations - up to 4 pts

STARBLAZING CODERS POSTER ASSIGNMENT

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Aviation Example

- Problem: CACC/WMU Aviation Program needed flight simulators
- Build from scratch
- Collaboration between Aviation, CAD/CAM, Computer Networking, and Construction
- Student lead and designed
- Each program evaluated the project - reflection papers, portfolio items, etc
- The students provide support and labor for maintaining.
- Similar projects for Greenhouse, Law Programs

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Aviation Example

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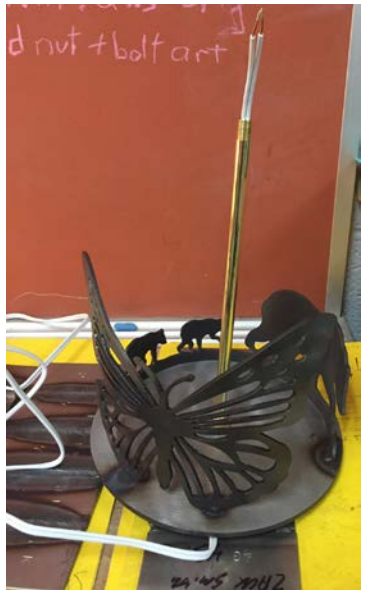
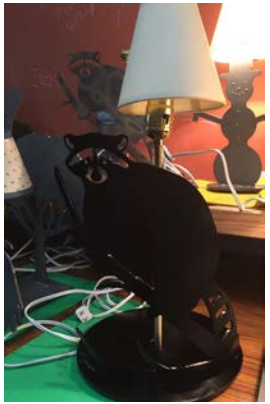
Welding Example - Lamps

Student made metal lamps in the welding class for Christmas presents. They used the laser cutter and uploaded premade designs to create their lamps. They then welded the sculptures to bases and wired the lamps for use. This is an annual task first year students do during the holiday season. Typically the students give these to their parents as gifts.





What Questions Might You Have?

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Example of a Project in PBL

Here are some other sites for projects:

https://www.rose-prism.org/moodle/prism/icpbl/?page=library (search by topic)

http://wvde.state.wv.us/teach21/pbl.html (click on search for PBL plan)

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What is PBL?

Project Based Learning is a teaching method in which students gain knowledge and skills by working for an extended period of time to investigate and respond to an authentic, engaging and complex question, problem, or challenge. In Gold Standard PBL, Essential Project Design Elements include:

- **Key Knowledge, Understanding, and Success Skills** - The project is focused on student learning goals, including standards-based content and skills such as critical thinking/problem solving, collaboration, and self-management.
- **Challenging Problem or Question** - The project is framed by a meaningful problem to solve or a question to answer, at the appropriate level of challenge.
- **Sustained Inquiry** - Students engage in a rigorous, extended process of asking questions, finding resources, and applying information.
- **Authenticity** - The project features real-world context, tasks and tools, quality standards, or impact – or speaks to students' personal concerns, interests, and issues in their lives.
- **Student Voice & Choice** - Students make some decisions about the project, including how they work and what they create.
- **Reflection** - Students and teachers reflect on learning, the effectiveness of their inquiry and project activities, the quality of student work, obstacles and how to overcome them.
- **Critique & Revision** - Students give, receive, and use feedback to improve their process and products.
- **Public Product** - Students make their project work public by explaining, displaying and/or presenting it to people beyond the classroom.

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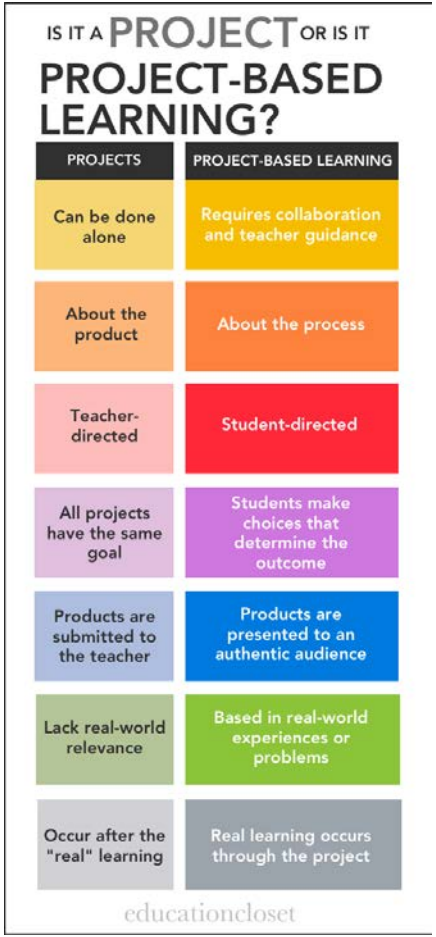

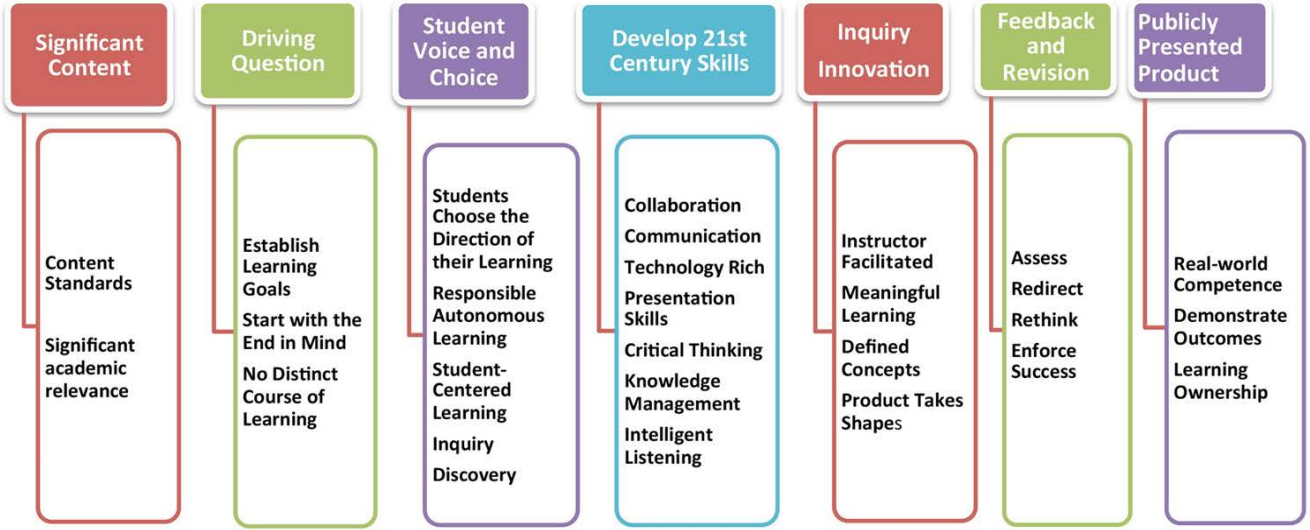

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